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ARTIFICIAL INTELLIGENCE AND ADMINISTRATIVE GOVERNANCE: A CRITICAL ANALYSIS OF TECHNOLOGICAL INTEGRATION IN VIETNAM'S LEGAL FRAMEWORK

INTELIGÊNCIA ARTIFICIAL E GOVERNANÇA ADMINISTRATIVA: UMA ANÁLISE CRÍTICA DA INTEGRAÇÃO TECNOLÓGICA NO QUADRO JURÍDICO DO VIETNÃ

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Abstract
This study critically examines the integration of artificial intelligence technologies into administrative decision-making processes, focusing on the legal and institutional challenges facing Vietnam's administrative governance system. Through comparative analysis of international implementations and doctrinal legal analysis, this research identifies fundamental tensions between technological efficiency and administrative law principles. The methodology employed doctrinal legal analysis combined with comparative institutional analysis to examine AI integration within civil law administrative frameworks, using Vietnam as a paradigmatic case study. The study analyzed international AI governance frameworks, assessed Vietnam's legal infrastructure, and developed a normative framework for responsible AI implementation. Key findings reveal that while AI presents transformative opportunities for administrative modernization, successful integration requires reconceptualizing traditional notions of administrative discretion, due process, and accountability within Vietnam's civil law framework. The research contributes to administrative law scholarship by proposing a graduated implementation model that balances technological innovation with constitutional principles of legal certainty and procedural fairness. These findings are significant for

Resumo
Este estudo examina criticamente a integração das tecnologias de inteligência artificial nos processos de tomada de decisão administrativa, com foco nos desafios legais e institucionais enfrentados pelo sistema de governança administrativa do Vietnã. Por meio da análise comparativa de implementações internacionais e da análise jurídica doutrinária, esta pesquisa identifica tensões fundamentais entre a eficiência tecnológica e os princípios do direito administrativo. A metodologia empregou a análise jurídica doutrinária combinada com a análise institucional comparativa para examinar a integração da IA nas estruturas administrativas do direito civil, usando o Vietnã como um estudo de caso paradigmático. O estudo analisou estruturas internacionais de governança de IA, avaliou a infraestrutura jurídica do Vietnã e desenvolveu uma estrutura normativa para a implementação responsável da IA. As principais conclusões revelam que, embora a IA apresente oportunidades transformadoras para a modernização administrativa, a integração bem-sucedida requer a reconceitualização das noções tradicionais de discricionariedade administrativa, devido processo legal e responsabilidade dentro da estrutura do direito civil do Vietnã. A pesquisa contribui para os estudos de direito administrativo ao propor um

developing legal systems seeking to leverage AI capabilities while preserving democratic accountability and rule of law principles.

Keywords: Artificial Intelligence. Administrative Law. Algorithmic Governance. Vietnam Legal System. Due Process. Administrative Discretion.

modelo de implementação gradual que equilibra a inovação tecnológica com os princípios constitucionais de segurança jurídica e equidade processual. Essas conclusões são significativas para o desenvolvimento de sistemas jurídicos que buscam alavancar os recursos da IA, preservando a responsabilidade democrática e os princípios do Estado de Direito.

Palavras-chave: *Inteligência Artificial. Direito Administrativo. Governança Algorítmica. Sistema Jurídico do Vietnã. Devido Processo Legal. Discrição Administrativa.*

1 INTRODUCTION

The integration of artificial intelligence into administrative decision-making represents a paradigmatic shift in public governance that challenges fundamental assumptions underlying administrative law doctrine. This technological transformation raises critical questions about the compatibility of algorithmic decision-making with established principles of administrative legitimacy, particularly within civil law jurisdictions where legal formalism and procedural regularity form the cornerstone of administrative authority.

The central research problem addressed in this paper concerns the normative and practical challenges of reconciling AI-driven administrative processes with the constitutional and legal principles that underpin legitimate governance in Vietnam's administrative system. This tension manifests across multiple dimensions: the opacity of machine learning algorithms conflicts with requirements for reasoned decision-making; the standardization inherent in algorithmic processes may undermine individualized consideration of cases; and the delegation of decisional authority to technological systems raises fundamental questions about democratic accountability and the rule of law.

Williams' (2022) seminal analysis of algorithmic decision-making in administrative contexts provides a theoretical foundation for understanding these challenges, arguing that administrative law must evolve beyond traditional human-centered models to address the unique characteristics of automated systems. Building upon this framework, this paper develops a critical analysis of how civil law jurisdictions,

particularly Vietnam, might navigate the integration of AI technologies while preserving core administrative law values.

This research addresses a significant gap in the literature by providing a theoretically grounded analysis of AI integration within civil law administrative frameworks. While existing scholarship has focused predominantly on technical implementation challenges and policy recommendations, limited attention has been paid to the deeper theoretical questions about the nature of administrative authority in algorithmic contexts, particularly in developing civil law systems.

The paper is structured as follows: Section 2 reviews the relevant literature on AI governance and administrative law; Section 3 outlines the research methodology; Section 4 presents the analysis of international frameworks and Vietnam's legal context; Section 5 discusses the implications and proposes a normative framework; and Section 6 concludes with recommendations for policy and future research.

2 LITERATURE REVIEW

2.1 Artificial Intelligence in public administration

The scholarly discourse on AI in public administration has evolved significantly over the past decade, moving from technical feasibility studies to more sophisticated analyses of governance implications. Taeihagh (2021) provides a comprehensive framework for understanding AI governance challenges, emphasizing the need for adaptive governance approaches that can respond to technological uncertainty while maintaining democratic accountability.

Parycek et al. (2024) offer detailed analysis of AI potential in administrative procedures, demonstrating how different AI technologies can be integrated into government processes. Their work identifies rule-based systems as most compatible with legal formalism, while highlighting the challenges posed by machine learning systems that operate through statistical correlation rather than explicit rule-following.

Hoang (2024) clearified that artificial intelligence, cloud technology, internet of things in the financial ecosystem, can support public accounting in fraud investigations and audits.

The legitimacy of algorithmic decision-making has become a central concern in the literature. Grimmelikhuijsen and Meijer (2022) identify six threats to legitimacy posed by algorithmic systems: input legitimacy (limited stakeholder participation), throughput legitimacy (procedural concerns), and output legitimacy (effectiveness and fairness issues). Their analysis emphasizes the need for calibrated institutional responses that address these multifaceted challenges.

Bovens and Zouridis (2002) provide foundational analysis of the transformation from "street-level" to "system-level" bureaucracies, demonstrating how automated systems fundamentally alter the nature of administrative discretion and citizen-state interactions. This transformation from human-centered to systematized administrative processes creates new challenges for maintaining democratic accountability and procedural fairness.

2.2 Administrative law and algorithmic systems

Williams (2022) provides the most comprehensive theoretical analysis of how administrative law principles apply to algorithmic decision-making. His work demonstrates that traditional administrative law concepts require fundamental reconceptualization to address the unique characteristics of AI systems, particularly the challenge of maintaining human oversight while leveraging technological capabilities.

Oswald (2018) examines algorithmic decision-making through the lens of administrative law rules governing discretionary power, demonstrating how established doctrines of procedural fairness and substantive review can be adapted to algorithmic contexts. This work provides important insights into how common law systems can evolve to address AI governance challenges through judicial interpretation.

Cobbe (2019) extends this analysis by examining the specific challenges that "machines of government" pose to traditional administrative law frameworks, particularly regarding transparency and explainability requirements. Her work demonstrates that automated systems require new approaches to ensuring procedural fairness and reasoned decision-making.

Alon-Barkat and Busuioc (2022) contribute empirical evidence on human-AI interactions in public sector decision-making, identifying phenomena of "automation

bias" and "selective adherence" that complicate traditional models of administrative accountability. Their research demonstrates that simply maintaining human oversight may not be sufficient to ensure responsible AI use.

2.3 Digital discretion and human-AI interaction

Busch and Henriksen (2018) provide systematic literature review evidence on digital discretion in street-level bureaucracy, demonstrating how information and communication technologies alter traditional patterns of administrative discretion. Their work reveals that digital systems can both constrain and enhance administrative flexibility, depending on their design and implementation.

Peeters (2020) advances understanding of human-algorithm interaction in administrative decision-making, identifying how algorithmic systems can structure and influence human discretion in complex ways. This research demonstrates that the preservation of human authority in hybrid systems requires careful attention to the design of human-AI interfaces and decision-making processes.

Young et al. (2019) examine "artificial discretion" as a governance tool, analyzing how algorithmic systems can be designed to exercise structured forms of administrative judgment. Their work provides theoretical foundations for understanding how discretionary authority might be appropriately delegated to technological systems while maintaining democratic accountability.

2.4 Accountability and bias in algorithmic systems

The literature on algorithmic accountability reveals significant challenges for traditional administrative oversight mechanisms. Smith et al. (2010) analyze how automation in the public sector creates new forms of accountability challenges, requiring innovative approaches to organizing responsibility across human and technological actors.

Bannister and Connolly (2020) propose a risk management framework for "administration by algorithm," identifying specific accountability risks and proposing

institutional responses. Their framework emphasizes the need for comprehensive oversight mechanisms that address both technical performance and policy compliance.

Empirical evidence of algorithmic bias in government systems has highlighted the importance of robust oversight mechanisms. Angwin et al. (2016) provide seminal documentation of machine bias in criminal justice risk assessment tools, demonstrating how statistical prediction systems can perpetuate and amplify existing social inequalities. Obermeyer et al. (2019) extend this analysis to healthcare settings, showing how algorithmic systems can exhibit systematic racial bias even when race is not explicitly included as a variable.

2.5 International AI governance frameworks

The European Union has emerged as a leader in AI governance, with the General Data Protection Regulation (GDPR) and the proposed AI Act establishing comprehensive frameworks for algorithmic accountability. Wachter et al. (2018) provide detailed analysis of GDPR Article 22 requirements for automated decision-making, demonstrating how rights-based approaches can constrain algorithmic authority while preserving space for legitimate automation.

Tallberg et al. (2023) analyze the emerging architecture of global AI governance, identifying the need for international coordination while recognizing the challenges of achieving consensus across different legal and political systems.

Comparative analysis reveals significant variation in national approaches to AI governance. Roberts et al. (2021) examine China's approach to AI governance, highlighting how different political systems create different opportunities and constraints for AI implementation. This comparative perspective is essential for understanding how legal traditions and institutional contexts shape AI governance possibilities.

2.6 Research gaps

The literature reveals several significant gaps that this study addresses. First, existing scholarship has focused predominantly on common law systems, with limited attention to the specific challenges facing civil law jurisdictions in AI governance.

Second, much of the literature treats technical implementation and legal governance as separate domains, failing to address their fundamental interconnection. Third, there is limited theoretical work on how core administrative law concepts such as discretion, accountability, and due process should be reconceptualized in algorithmic contexts.

This study contributes to filling these gaps by providing a theoretically grounded analysis of AI integration within civil law administrative frameworks, using Vietnam as a paradigmatic case study of the challenges facing developing legal systems in the digital age.

3 RESEARCH METHODOLOGY

3.1 Research design

This study employs a qualitative research design combining doctrinal legal analysis with comparative institutional analysis. This methodological approach is appropriate for addressing the normative and theoretical questions about AI integration in administrative systems, allowing for deep analysis of legal principles while incorporating comparative insights from international experience.

3.2 Analytical framework

The analytical framework consists of three components:

Doctrinal Legal Analysis by systematic examination of administrative law principles and their application to algorithmic contexts, focusing on core concepts such as administrative discretion, procedural fairness, and accountability.

Comparative Institutional Analysis by cross-national comparison of AI governance frameworks, examining how different legal traditions and institutional contexts shape approaches to algorithmic accountability.

Normative Analysis the development of theoretical frameworks for understanding the relationship between technological capabilities and legal requirements, leading to policy recommendations for Vietnam's specific context.

3.3 Data sources

The study draws on multiple types of sources:

Primary Legal Sources such as: Constitutional provisions, statutes, regulations, and case law from Vietnam and comparative jurisdictions

Academic Literature such as: peer-reviewed scholarly articles on AI governance, administrative law, and comparative public administration

Policy Documents such as: government strategies, regulatory guidance, and international frameworks for AI governance

Empirical Studies of research on AI implementation in government contexts, including performance evaluations and impact assessments

3.4 Case selection

Vietnam was selected as the primary case study for several reasons: (1) it represents a developing civil law system facing AI governance challenges; (2) it has actively pursued digital transformation initiatives that create opportunities for AI integration; (3) it has recently developed comprehensive data protection legislation that provides a foundation for AI governance; and (4) it faces resource and capacity constraints typical of developing legal systems.

Comparative cases were selected to provide insights from different legal traditions and development levels, including the European Union (comprehensive rights-based approach), the United States (decentralized regulatory approach), and Singapore (techno-regulatory approach in a developing country context).

3.5 Analytical process

The analytical process involved several stages:

1. Mapping Legal Frameworks: Systematic analysis of existing legal frameworks in Vietnam and comparative jurisdictions
2. Identifying Tensions: Analysis of conflicts between AI technological characteristics and legal requirements

3. Comparative Analysis: Cross-national comparison of approaches to resolving these tensions
4. Normative Development: Development of theoretical frameworks for AI governance appropriate to Vietnam's context
5. Policy Translation: Translation of theoretical insights into practical recommendations for policy development

3.6 Limitations

This study has several limitations that should be acknowledged. First, as a primarily theoretical and doctrinal analysis, it does not include empirical testing of proposed frameworks. Second, the focus on Vietnam may limit generalizability to other civil law systems with different institutional characteristics. Third, the rapidly evolving nature of AI technology means that technical assumptions underlying the analysis may become outdated. Despite these limitations, the study provides valuable theoretical insights that can inform both scholarship and policy development.

4 RESULTS

4.1 Theoretical analysis: AI and administrative authority

4.1.1 The nature of administrative decision-making in algorithmic contexts

Administrative decision-making traditionally derives its legitimacy from the combination of legal authorization, procedural regularity, and reasoned judgment exercised by accountable officials. The introduction of AI systems fundamentally disrupts this model by introducing forms of decision-making that operate according to statistical correlations rather than legal reasoning. This disruption challenges the foundational assumptions of Weber's bureaucratic rationality, which emphasizes rule-following and predictable procedures as sources of legitimate authority.

Rule-based AI systems, which encode predetermined decision trees into computational logic, appear most compatible with traditional administrative law

frameworks. These systems operationalize legal rules through conditional logic structures ("if-then" statements), maintaining transparency in decision-making processes (Parycek et al., 2024). The compatibility stems from their ability to mirror the deductive reasoning that characterizes legal decision-making, where general rules are applied to specific factual circumstances. Carnis (2007) documents successful implementation of rule-based automated speed enforcement systems in Great Britain, demonstrating how clearly defined legal standards can be effectively encoded into algorithmic processes. However, even rule-based systems raise fundamental questions about the appropriate level of discretion in rule formulation and the risk of over-proceduralization that could undermine the flexibility necessary for effective governance.

The transparency of rule-based systems enables meaningful review and accountability, as decision criteria can be examined and modified through democratic processes. This characteristic aligns with administrative law requirements for reasoned decision-making and procedural fairness. However, the apparent simplicity of rule-based systems masks complex questions about rule design, including the selection of relevant factors, the weighting of different considerations, and the handling of exceptional circumstances that may not fit predetermined categories.

Machine learning systems present more fundamental challenges to administrative law doctrine. Unlike rule-based systems, machine learning algorithms derive decision criteria from statistical patterns in training data rather than explicit legal rules (Parycek et al., 2024). This approach conflicts with the principle that administrative decisions must be based on legally relevant criteria rather than mere correlation. The opacity of machine learning decision-making processes, often described as the "black box" problem, creates particular difficulties for administrative systems that must provide reasons for their decisions. Lipton (2018) demonstrates that the concept of interpretability in machine learning remains fundamentally problematic, with different stakeholders requiring different types of explanations that may be technically incompatible.

The Chicago Police Department's Strategic Subject List exemplifies these challenges. The system's reliance on algorithmic risk assessment without transparent decision criteria undermined traditional notions of procedural fairness and reasoned decision-making. The RAND Corporation's evaluation revealing that 99% of homicide victims were not predicted by the system demonstrates the inadequacy of purely statistical

approaches to complex administrative problems. Ferguson (2012) provides legal analysis of how predictive policing systems fail to meet reasonable suspicion standards, illustrating how the pursuit of predictive accuracy can conflict with legal requirements for fair treatment and due process.

The fundamental tension between statistical prediction and legal reasoning reflects deeper philosophical differences about the nature of justice and fairness. Legal systems emphasize individual consideration and the application of general principles to specific circumstances, while machine learning systems optimize for aggregate outcomes based on statistical regularities. This tension cannot be resolved through technical means alone but requires careful consideration of the appropriate scope and limits of algorithmic authority in democratic governance.

4.1.2 Hybrid systems and administrative discretion

Hybrid systems, which combine machine learning analytics with rule-based validation, offer a potential pathway for reconciling technological capability with legal requirements. These systems represent an attempt to harness the pattern recognition capabilities of machine learning while preserving the transparency and accountability associated with rule-based approaches. Juell-Skielse et al. (2022) provide frameworks for service automation in public organizations that emphasize the importance of maintaining human oversight in automated processes. However, hybrid systems raise their own theoretical questions about the distribution of decisional authority between human and artificial agents.

The delegation of initial screening to algorithmic systems, while preserving human oversight for final decisions, may create a form of "bounded rationality" that constrains rather than enhances administrative discretion. This phenomenon, which might be termed "algorithmic structuring of discretion," occurs when AI systems predetermine the range of options available to human decision-makers. Holstein et al. (2019) provide empirical evidence from industry practitioners demonstrating that human decision-makers often experience difficulty overriding algorithmic recommendations, even when they have legitimate concerns about system outputs. The apparent preservation of human

authority may be illusory if the algorithmic screening process effectively determines outcomes through its selection of cases and framing of issues.

The design of hybrid systems requires careful attention to the allocation of functions between human and artificial components. Optimal allocation depends on the relative strengths and limitations of each component, as well as the legal and political requirements of the administrative context. Human judgment excels at handling novel situations, applying normative considerations, and exercising contextual discretion, while AI systems can process large volumes of data, identify subtle patterns, and ensure consistent application of established criteria. Kleinberg et al. (2018) provide systematic analysis of human decisions and machine predictions, demonstrating that optimal human-AI collaboration requires understanding the specific strengths and limitations of each component.

The temporal dimension of hybrid systems also presents important considerations. Sequential systems, where AI screening precedes human review, may create different dynamics than parallel systems, where human and artificial judgments are developed independently and then compared. The timing and nature of human intervention in algorithmic processes significantly affect both the quality of decisions and the distribution of responsibility.

4.1.3 Accountability and attribution of responsibility

The introduction of AI systems complicates traditional models of administrative accountability by creating "distributed responsibility" across human officials, system designers, and algorithmic processes. Williams (2022) argues that maintaining genuine policy accountability requires that fundamental decisions about relevant factors remain with public authorities rather than being delegated to technological systems. This insight highlights the importance of distinguishing between technical implementation decisions and substantive policy choices in AI system design.

Traditional accountability mechanisms assume a clear chain of responsibility from democratic authorization through administrative implementation to individual decisions. AI systems disrupt this chain by introducing non-human actors whose behavior may not be fully predictable or controllable by human officials. Bovens (2010) provides

foundational analysis of accountability concepts, demonstrating that effective accountability requires clear attribution of responsibility, adequate information for evaluation, and meaningful sanctions for poor performance. These requirements become complicated in algorithmic contexts where responsibility is distributed across multiple actors and technical systems.

Smith et al. (2010) analyze how automating the public sector creates new challenges for organizing accountabilities, requiring institutional innovations that address the unique characteristics of technological systems. Their work demonstrates that traditional accountability mechanisms designed for human decision-makers may be inadequate for addressing the complexities of algorithmic governance.

The concept of algorithmic accountability requires reconceptualizing responsibility to address the unique characteristics of AI systems. Rather than simple attribution of responsibility to human actors, effective accountability frameworks must address system design, data quality, algorithmic performance, and human oversight mechanisms. Bannister and Connolly (2020) propose comprehensive risk management frameworks that address these multi-dimensional accountability challenges, emphasizing the need for systematic approaches to identifying and managing algorithmic risks.

Widlak and Peeters (2020) provide empirical evidence of administrative errors and the burden of correction in automated systems, demonstrating how accountability gaps can create significant costs for both individuals and institutions. Their research highlights the importance of designing accountability mechanisms that can effectively address both systematic errors and individual grievances in algorithmic contexts.

4.2 Comparative analysis: international frameworks

4.2.1 European union: rights-based approach to AI governance

The European Union has developed the most comprehensive legal framework for AI governance, emphasizing individual rights and procedural protections. Article 22 of the General Data Protection Regulation establishes a fundamental right not to be subject to purely automated decision-making, with exceptions for legal authorization and

adequate safeguards. This rights-based approach reflects European legal traditions that prioritize individual dignity and procedural fairness over administrative efficiency.

Wachter et al. (2018) provide detailed analysis of GDPR Article 22 implementation, demonstrating how the right to explanation in automated decision-making creates significant constraints on algorithmic systems while preserving space for legitimate automation. Their work shows that meaningful implementation of explanation rights requires substantial technical and institutional innovations that go beyond simple disclosure of algorithmic criteria.

The EU's proposed AI Act extends this rights-based approach by establishing a risk-based regulatory framework that categorizes AI systems according to their potential for harm. High-risk AI applications, including many government uses, are subject to strict requirements for transparency, accuracy, and human oversight. This approach provides a model for comprehensive AI regulation that other jurisdictions might adapt to their specific legal and political contexts.

Harlow and Rawlings (2020) analyze how proceduralism and automation create challenges for administrative law values, demonstrating that rights-based approaches require substantial institutional adaptations to be effective. Their work shows that the EU approach provides important insights for developing legal systems, particularly the emphasis on meaningful human oversight and the right to explanation in automated decision-making processes. However, the EU approach may be overly restrictive for developing administrative systems seeking to leverage AI for efficiency gains. The tension between rights protection and administrative efficiency reflects broader questions about the appropriate balance between individual rights and collective benefits in AI governance.

4.2.2 Common law adaptations and judicial innovation

Common law jurisdictions have begun developing judicial responses to AI systems through traditional administrative law doctrines, demonstrating the adaptability of common law systems to technological change. The Bridges case demonstrates how established principles of procedural fairness and substantive review can be applied to

algorithmic systems, requiring public authorities to assess bias and provide adequate legal frameworks for AI deployment.

Veale and Brass (2019) provide comprehensive analysis of "administration by algorithm" in common law contexts, demonstrating how judicial interpretation can evolve to address AI governance challenges. Their work shows that common law systems can develop effective responses to algorithmic governance through case-by-case development of legal principles, though this approach may create uncertainty for government agencies.

Motzfeldt and Naesborg-Andersen (2018) examine how administrative law development in Denmark addresses digital government challenges, providing comparative insights into how civil law and common law systems can learn from each other's approaches to AI governance.

The case law development in common law systems provides valuable precedents for addressing AI governance challenges through judicial interpretation rather than comprehensive legislative frameworks. This evolutionary approach allows for gradual development of legal principles in response to specific cases and circumstances, though it may create uncertainty for government agencies seeking to implement AI systems.

The adaptability of common law systems through judicial interpretation provides a model for responsive governance of emerging technologies, though this approach may be less suitable for civil law systems that rely on codified legal frameworks. The different approaches to AI governance in common law and civil law systems reflect broader differences in legal culture and institutional design.

4.2.3 Emerging principles for civil law AI governance

Comparative analysis reveals several key principles for AI governance in civil law systems that differ from common law approaches. These principles reflect the emphasis on legal certainty, systematic organization, and comprehensive codification that characterizes civil law traditions.

Legal Certainty and Predictability: AI systems in civil law jurisdictions must operate within clearly defined legal parameters with transparent decision criteria. This requirement reflects the civil law emphasis on legal certainty and the predictability of legal outcomes. Unlike common law systems, where legal principles can evolve through

judicial interpretation, civil law systems require explicit legislative or regulatory authorization for new forms of governmental authority. Ziller (2012) analyzes the continental system of administrative legality, demonstrating how civil law traditions create specific requirements for legal authorization and procedural regularity that must be preserved in algorithmic contexts.

Proportionality and Subsidiarity: The scope of AI authority must be proportionate to the administrative function and potential impact on individual rights. This principle, derived from European administrative law traditions, requires that AI systems be used only when necessary and appropriate, with less intrusive alternatives being preferred when available. Roehl (2022) provides frameworks for understanding automated decision-making that emphasize proportionality requirements in system design and implementation.

Procedural Regularity and Formal Validity: Automated systems must maintain procedural safeguards equivalent to those in human decision-making, ensuring that the formality and procedural regularity that characterize civil law administration are preserved in algorithmic contexts. Andersson et al. (2018) examine automated decision-making and legitimacy in public administration, demonstrating how procedural requirements must be adapted to algorithmic contexts while preserving core legitimacy values.

4.3 Vietnam's legal framework assessment

4.3.1 Constitutional foundations and administrative law principles

Vietnam's 2013 Constitution establishes fundamental principles that must govern AI integration in administrative systems. Article 21's protection of private life, personal secrets, and family secrets provides constitutional foundation for data protection requirements in AI systems (Duc et al., 2024). The Civil Code's emphasis on consent-based information processing creates additional constraints on algorithmic data use that must be carefully considered in AI system design.

The Law on Administrative Procedure 2015 establishes procedural requirements for administrative decision-making that must be preserved in AI implementations. The

emphasis on clear legal basis, procedural fairness, and reasoned decisions creates a framework that favors rule-based over machine learning approaches. This legal framework reflects Vietnam's civil law tradition and creates both opportunities and constraints for AI implementation.

The constitutional principle of socialist legality, which requires all state activities to be conducted according to law, creates particular requirements for AI system authorization and oversight. This principle demands clear legal authorization for AI use and robust mechanisms for ensuring compliance with legal requirements. The principle reflects Vietnam's specific legal and political context while creating constraints similar to those found in other civil law systems.

4.3.2 Data protection framework and privacy implications

Vietnam's Decree No. 13/2023/ND-CP on Personal Data Protection establishes a comprehensive framework that could support responsible AI implementation. The decree's requirements for data minimization, purpose limitation, and cross-border transfer restrictions create constraints that may limit certain AI applications while ensuring privacy protection. This framework reflects international best practices while adapting to Vietnam's specific legal and political context.

The forthcoming Law on Data, effective July 2025, introduces novel concepts of "important data" and "core data" with differentiated protection requirements. This graduated approach could provide flexibility for AI systems while maintaining appropriate safeguards for sensitive information. The law's establishment of a National Data Centre and National General Database creates new institutional arrangements that will significantly affect AI implementation possibilities.

The intersection between data protection requirements and AI functionality creates particular challenges for machine learning systems that depend on large datasets for training and operation. Vietnam's data protection framework requires careful balancing of privacy protection with the data requirements of effective AI systems. Schwartz et al. (2022) provide NIST standards for identifying and managing bias in artificial intelligence that could inform Vietnam's approach to balancing data protection with AI functionality.

4.3.3 Implementation challenges and institutional capacity

Vietnam's digital government initiatives provide policy foundation for AI integration, with the government aiming for the digitalized economy to account for 20% of GDP by 2025 and 30% by 2030 (Pham et al., 2024). These ambitious targets reflect strong political commitment to digital transformation but also highlight the challenges facing implementation efforts.

Research indicates that only a small number of Vietnamese firms have embraced digital transformation, suggesting broader challenges in developing the technical expertise necessary for responsible AI governance. The limited private sector capacity creates particular challenges for government AI implementation, as the public sector may lack access to the technical expertise needed for sophisticated AI systems.

Das and Chandrashekhar (2007) provide comparative analysis of capacity-building for e-governance in India, demonstrating the challenges facing developing countries in building institutional capacity for digital governance. Their work suggests that Vietnam's capacity constraints require tailored approaches that account for resource limitations and capacity-building needs. Helbig et al. (2009) analyze the complexity of electronic government, providing frameworks for understanding the institutional requirements for successful digital transformation that are relevant to Vietnam's context.

The institutional capacity constraints facing Vietnam's administrative system create particular challenges for AI implementation that differ from those facing developed countries with established technical expertise and robust oversight mechanisms. These constraints require tailored approaches that account for resource limitations and capacity-building needs.

5 DISCUSSION

5.1 Normative framework for AI integration in administrative systems

5.1.1 Graduated implementation model: theoretical foundations and practical applications

This study proposes a graduated implementation model that begins with rule-based systems for routine administrative functions and progressively incorporates more sophisticated AI technologies as institutional capacity develops. This approach recognizes the importance of building experience and trust before deploying more complex and potentially problematic systems. The theoretical foundation for this model draws from institutional learning theory and the concept of path-dependent technological development, which suggests that successful technology adoption requires gradual accumulation of expertise and institutional adaptation.

Fukuyama (2013, 2014) provides institutional development frameworks that support graduated approaches to governance innovation, emphasizing that successful institutional change requires careful attention to capacity building and stakeholder adaptation. Grindle (2004) extends this analysis to developing countries, demonstrating that "good enough governance" approaches that prioritize incremental improvement may be more effective than comprehensive reform efforts that exceed institutional capacity.

The graduated approach addresses the fundamental tension between the desire for rapid modernization and the need for careful risk management in democratic governance. Rather than pursuing comprehensive AI transformation, this model prioritizes sustainable development of institutional capacity while minimizing the risks associated with premature deployment of sophisticated systems. This approach is particularly relevant for developing countries where institutional capacity and technical expertise may be limited.

5.1.1.1 Phase 1: rule-based automation and legal formalism

Initial implementation should focus on clearly defined administrative procedures where legal requirements can be effectively encoded into algorithmic rules. Social

housing eligibility determination, permit renewals, and similar routine functions provide appropriate starting points that minimize discretionary judgment while delivering efficiency gains. The selection of appropriate use cases for initial implementation is crucial for building institutional confidence and public trust in automated systems.

Carnis (2007) demonstrates successful implementation of rule-based automated speed enforcement systems, showing how clearly defined legal standards can be effectively translated into algorithmic processes. The British experience with automated speed enforcement illustrates how rule-based systems can enhance both efficiency and consistency while maintaining public legitimacy through transparent decision criteria.

Rule-based systems align well with the legal formalism characteristic of civil law traditions, making them particularly suitable for Vietnam's administrative context. The transparency and predictability of rule-based systems support the legal certainty requirements that are fundamental to civil law governance. Moreover, the ability to trace decision logic through explicit rules facilitates oversight and accountability mechanisms that are essential for democratic governance.

The success of Phase 1 implementation depends on careful selection of appropriate administrative functions that meet several criteria: clear legal authorization, well-defined decision criteria, limited discretionary elements, and relatively low stakes for errors. Administrative functions involving routine compliance checking, eligibility determination for clearly defined programs, and standardized permit processing represent ideal candidates for initial automation.

5.1.1.2 Phase 2: hybrid systems with enhanced human oversight

Intermediate implementation could introduce machine learning capabilities for data analysis and pattern recognition while maintaining human decision-making authority for final determinations. This approach preserves administrative accountability while leveraging technological capabilities for enhanced analytical support. The design of effective hybrid systems requires careful attention to the division of labor between human and artificial components, ensuring that each performs functions suited to its capabilities and limitations.

Peeters (2020) provides detailed analysis of human-algorithm interaction in administrative decision-making, demonstrating how hybrid systems can enhance rather than replace human discretion when properly designed. The key insight is that successful hybrid systems must preserve meaningful human authority while providing algorithmic support that enhances rather than constrains decision-making capacity.

Hybrid systems offer particular promise for complex administrative functions that involve both routine processing and exceptional circumstances requiring human judgment. Immigration processing, regulatory enforcement, and welfare administration represent areas where machine learning analytics could enhance human decision-making without replacing human authority. The key to successful hybrid implementation lies in designing interfaces that enhance rather than constrain human discretion.

The temporal and procedural integration of human and artificial components in hybrid systems presents important design choices that significantly affect system performance and accountability. Sequential systems, where AI analysis precedes human review, may create different dynamics than parallel systems where human and artificial assessments are developed independently. The choice between these approaches depends on the specific administrative context and the relative importance of efficiency versus deliberation.

5.1.1.3 Phase 3: supervised autonomous systems with robust oversight

Advanced implementation might permit limited autonomous decision-making in specific domains, subject to robust oversight mechanisms and clear legal frameworks for accountability and appeal. This phase represents the most significant departure from traditional administrative models and requires the most careful attention to legal and democratic requirements. The development of supervised autonomous systems must be grounded in comprehensive legal frameworks that clearly define the scope of automated authority and the mechanisms for human oversight.

The transition to supervised autonomous systems requires resolution of fundamental questions about the delegation of governmental authority to non-human actors. Constitutional and administrative law principles governing the delegation of authority must be carefully examined and potentially modified to accommodate

autonomous systems while preserving democratic accountability. This transition cannot be purely technical but must involve careful consideration of political and legal implications.

5.1.2 Institutional design requirements for AI governance

Successful AI integration requires institutional innovations that preserve democratic accountability while enabling technological capabilities. The design of appropriate institutions for AI governance must address the unique characteristics of AI systems while maintaining compatibility with existing administrative structures and legal requirements.

Vietnam should establish specialized units within administrative agencies with expertise in AI governance, combining technical knowledge with legal and policy expertise. These units should serve as centers of excellence for AI implementation, providing technical guidance, policy development, and oversight functions. The creation of such units requires careful attention to staffing, training, and organizational placement within existing administrative structures.

The staffing of AI oversight units presents particular challenges for developing countries where relevant expertise may be scarce. Building institutional capacity for AI governance requires comprehensive training programs, recruitment strategies, and collaboration with academic and private sector organizations. International cooperation and capacity-building programs may be essential for developing the necessary expertise within reasonable timeframes.

The organizational design of AI oversight units must balance independence with integration into existing administrative structures. These units must have sufficient authority to influence AI implementation decisions while maintaining appropriate relationships with operational agencies. The governance structure for AI oversight units should provide clear lines of accountability while enabling the flexibility necessary for responding to rapidly evolving technological developments.

AI systems must be subject to transparency requirements that enable meaningful oversight without compromising operational effectiveness. The design of transparency mechanisms for AI systems presents particular challenges because complete transparency

may be technically infeasible or operationally counterproductive. Effective transparency frameworks must balance public accountability requirements with practical constraints on system disclosure.

Ananny and Crawford (2018) analyze the limitations of transparency ideals in algorithmic accountability, demonstrating that transparency alone may be insufficient for ensuring responsible AI use. Their work suggests that effective accountability frameworks must combine transparency with other mechanisms such as audit procedures, performance standards, and appeal processes.

The development of appropriate transparency standards for AI systems requires careful consideration of different stakeholder needs and capabilities. Citizens affected by AI decisions require sufficient information to understand and potentially challenge those decisions, while oversight bodies need technical information to assess system performance and compliance. These different information needs may require different types of disclosure and explanation mechanisms.

Administrative AI systems must be subject to meaningful review procedures that can address both systemic issues and individual case errors. The design of effective review mechanisms for algorithmic decisions requires adaptation of traditional administrative review procedures to address the unique characteristics of AI systems. These procedures must be capable of addressing both technical errors and policy disagreements about system design or implementation.

The development of appeal procedures for AI decisions raises fundamental questions about the appropriate standards for review and the expertise required for meaningful evaluation of algorithmic systems. Traditional administrative review procedures assume human decision-makers who can explain their reasoning and respond to challenges. AI systems may require new forms of review that address technical performance, data quality, and algorithmic bias rather than individual reasoning processes.

5.1.3 Legal framework enhancements for AI implementation

Vietnam's legal framework requires specific enhancements to support responsible AI integration while maintaining compatibility with existing constitutional and

administrative law principles. These enhancements must address the unique characteristics of AI systems while preserving fundamental legal values and democratic accountability mechanisms.

Specific statutory authorization for AI use in administrative contexts is essential for establishing clear legal foundations for algorithmic governance. This authorization must define permissible applications, required safeguards, and oversight mechanisms while providing sufficient flexibility for technological evolution. The design of legislative authorization frameworks must balance specificity with adaptability to avoid either excessive constraint or inadequate control.

The scope of legislative authorization for AI systems must carefully define the boundaries of automated authority while preserving space for human discretion and oversight. This definition requires attention to both functional boundaries (what types of decisions can be automated) and procedural boundaries (what safeguards must be maintained). The legislative framework must also address the relationship between automated and human decision-making processes.

Technical standards for AI system development, testing, and deployment in administrative contexts are essential for ensuring consistent quality and performance across different applications and agencies. These standards must address bias testing, performance benchmarks, security requirements, and data quality standards while remaining flexible enough to accommodate technological evolution and diverse application contexts.

Schwartz et al. (2022) provide comprehensive NIST standards for identifying and managing bias in artificial intelligence that could inform Vietnam's approach to AI governance. Their framework addresses multiple types of bias (historical, representational, measurement, aggregation, evaluation, and deployment bias) and provides practical guidance for bias mitigation in AI systems.

The development of regulatory standards for AI systems requires close collaboration between technical experts, legal professionals, and policy makers to ensure that standards are both technically sound and legally appropriate. International coordination on technical standards may be beneficial for promoting interoperability and sharing best practices, though standards must also be adapted to local legal and institutional contexts.

Clear legal frameworks establishing responsibility for AI system decisions are essential for maintaining democratic accountability and protecting individual rights. These frameworks must address liability allocation between human officials, implementing agencies, and technology providers while maintaining sufficient clarity to enable effective oversight and enforcement. The complexity of AI systems may require new approaches to liability that address both individual decisions and systemic performance.

Barocas and Selbst (2016) provide legal analysis of big data's disparate impact, demonstrating how traditional discrimination law concepts must be adapted to address algorithmic systems. Their work shows that liability frameworks for AI systems must address both intentional discrimination and disparate impact effects that may result from seemingly neutral algorithmic processes.

The allocation of liability for AI decisions must consider the different roles and capabilities of various actors in the AI implementation process. Human officials retain responsibility for policy choices and oversight functions, while technology providers may bear responsibility for system performance and technical compliance. The framework must provide clear guidance for allocating responsibility in complex cases involving multiple contributing factors.

5.2 Implications for administrative law theory and practice

5.2.1 Reconceptualizing administrative discretion in algorithmic contexts

The integration of AI systems requires fundamental reconceptualization of traditional notions of administrative discretion. Rather than viewing AI as simply replacing human judgment, successful integration involves designing systems that enhance human decision-making capability while preserving meaningful choice and accountability. This reconceptualization must address both the theoretical foundations of administrative discretion and the practical mechanisms for preserving it in algorithmic contexts.

Traditional concepts of administrative discretion assume human decision-makers exercising judgment within legal constraints. AI systems disrupt this model by

introducing forms of structured decision-making that may either constrain or enhance human discretion depending on their design and implementation. The challenge lies in designing AI systems that leverage technological capabilities while preserving the flexibility and judgment that characterize effective administrative discretion.

This suggests a move toward "augmented discretion," where AI systems provide analytical capability and consistency while preserving human authority over policy choices and exceptional cases. Augmented discretion represents a new model of administrative decision-making that combines the pattern recognition and processing capabilities of AI systems with the contextual judgment and normative reasoning capabilities of human officials.

Young et al. (2019) analyze artificial discretion as a tool of governance, demonstrating how algorithmic systems can be designed to exercise structured forms of administrative judgment while preserving space for human oversight and intervention. Their work provides theoretical foundations for understanding how discretionary authority might be appropriately shared between human and artificial agents.

5.2.2 Evolving concepts of due process in digital governance

AI implementation challenges traditional concepts of procedural due process by introducing forms of decision-making that may not conform to established procedural models. The requirement for reasoned decision-making, fundamental to administrative law, becomes complex when decisions emerge from statistical correlations rather than legal reasoning. Due process requirements must evolve to address algorithmic contexts while preserving core values of fairness, transparency, and accountability.

Kleinberg et al. (2018) provide detailed analysis of discrimination in the age of algorithms, demonstrating how traditional due process concepts must be adapted to address the unique characteristics of algorithmic decision-making. Their work shows that algorithmic due process must address both procedural fairness (how decisions are made) and substantive fairness (whether outcomes are just).

The adaptation of due process requirements to algorithmic decision-making must address both procedural and substantive dimensions. Procedural adaptations might include new forms of notice that explain algorithmic decision processes, opportunities for

meaningful participation in system design and oversight, and access to information necessary for challenging algorithmic decisions. Substantive adaptations might address the standards for evaluating algorithmic fairness and the criteria for assessing the reasonableness of automated decisions.

The development of algorithmic due process must also consider the different capabilities and limitations of AI systems compared to human decision-makers. While AI systems may provide greater consistency and reduce certain forms of bias, they may also introduce new forms of systematic error or discrimination. Due process protections must be designed to address these specific risks while preserving the benefits of algorithmic decision-making.

Buolamwini and Gebru (2018) provide empirical evidence of intersectional accuracy disparities in commercial gender classification systems, demonstrating how algorithmic systems can exhibit systematic bias that requires new forms of due process protection. Their work shows that algorithmic due process must address not only individual fairness but also group fairness and systemic bias.

5.2.3 Democratic legitimacy and technological authority

The delegation of administrative authority to AI systems raises fundamental questions about democratic legitimacy and the accountability of public power. Maintaining democratic control over AI systems requires ensuring that fundamental policy choices remain with democratically accountable officials rather than being embedded in algorithmic design. This requirement creates new challenges for preserving democratic governance in an era of increasing technological sophistication.

The preservation of democratic legitimacy in algorithmic governance requires attention to both the input and output dimensions of democratic accountability. Input legitimacy requires meaningful public participation in decisions about AI implementation and oversight, while output legitimacy requires that AI systems produce outcomes that serve the public interest and reflect democratic values. Achieving both dimensions of legitimacy may require new institutions and procedures specifically designed for algorithmic governance.

Kuziemski and Misuraca (2020) provide detailed analysis of AI governance in democratic settings, examining three case studies of automated decision-making implementation. Their work demonstrates that successful AI governance requires careful attention to democratic participation, transparency, and accountability mechanisms that preserve democratic control over technological systems.

The challenge of maintaining democratic control over AI systems is complicated by the technical complexity of these systems and the speed at which they evolve. Democratic institutions designed for human-scale decision-making may struggle to provide effective oversight of rapidly evolving technological systems. New approaches to democratic governance may be necessary to ensure that AI systems remain accountable to democratic control.

5.3 Practical implications for Vietnam

For Vietnam specifically, this analysis suggests that the existing legal framework provides a solid foundation for AI integration, but requires specific enhancements to address algorithmic governance challenges. The emphasis on legal formalism in Vietnam's administrative law tradition may provide advantages in implementing rule-based AI systems, while creating challenges for more sophisticated machine learning applications.

The key to successful implementation lies in building institutional capacity while developing appropriate legal frameworks for accountability and oversight. Vietnam's ongoing digital transformation initiatives provide policy momentum, but success will depend on addressing technical capacity constraints and building public trust in automated systems.

The graduated implementation model proposed in this study provides a practical pathway for Vietnam to develop AI governance capabilities while managing the risks associated with premature deployment of sophisticated systems. By beginning with rule-based systems for routine functions and gradually building toward more sophisticated applications, Vietnam can develop the institutional expertise and public trust necessary for successful AI governance.

6 CONCLUSION

6.1 Summary of findings

This study has examined the integration of artificial intelligence technologies into administrative decision-making processes, with particular focus on the challenges facing Vietnam's legal system. The analysis reveals fundamental tensions between technological capabilities and legal requirements that must be carefully navigated to ensure successful AI implementation.

Key findings include: (1) different types of AI systems present different challenges for administrative law, with rule-based systems more compatible with legal formalism than machine learning approaches; (2) hybrid systems offer promising pathways for reconciling technological capabilities with legal requirements; (3) successful AI integration requires reconceptualizing core administrative law concepts including discretion, accountability, and due process; and (4) Vietnam's civil law tradition provides both opportunities and constraints for AI implementation.

6.2 Theoretical contributions

This paper contributes to administrative law scholarship by providing a theoretical framework for understanding the integration of AI technologies within civil law administrative systems. The analysis demonstrates that successful AI integration requires more than technical implementation; it demands reconceptualizing fundamental concepts of administrative authority, discretion, and accountability.

The proposed graduated implementation model offers a practical pathway for civil law jurisdictions to embrace technological innovation while preserving constitutional principles and democratic accountability. This framework addresses the gap between technical capability and legal requirements that has hindered effective AI governance in many jurisdictions.

6.3 Policy recommendations

Based on this analysis, several recommendations emerge for Vietnamese policymakers:

1. Develop comprehensive legal framework for AI in public administration that clearly defines permissible applications and required safeguards
2. Adopt phased implementation approach beginning with rule-based systems for routine administrative functions
3. Invest in institutional capacity building for AI governance, including technical expertise and oversight mechanisms
4. Establish specialized oversight bodies with expertise in AI governance
5. Engage stakeholders in AI governance processes to build public trust and ensure accountability
6. Learn from international experiences while adapting approaches to Vietnam's specific legal and institutional context

6.4 Limitations and future research

This study has several limitations that suggest directions for future research. As a primarily theoretical analysis, the proposed frameworks require empirical testing through pilot implementations. The focus on Vietnam may limit generalizability to other civil law systems with different characteristics.

Future research should include: (1) empirical studies of pilot AI implementations in Vietnamese administrative contexts; (2) broader comparative analysis of AI governance in developing civil law jurisdictions; (3) research on optimal institutional arrangements for AI oversight in resource-constrained environments; and (4) studies of citizen attitudes toward AI in government and factors influencing public trust.

6.5 Final observations

The integration of AI into administrative systems represents both an opportunity and a challenge for legal systems worldwide. For Vietnam, success will depend on

thoughtful adaptation of international best practices to local legal and institutional contexts. The civil law tradition's emphasis on legal certainty and procedural regularity may provide advantages in implementing transparent, rule-based AI systems while creating challenges for more sophisticated applications.

Ultimately, the goal should not be technological adoption for its own sake, but rather leveraging AI capabilities to enhance the effectiveness, fairness, and accessibility of administrative governance while preserving the constitutional and democratic values that legitimize public authority.

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All authors contributed equally to the development of this article.

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